A TEST OF THE EFQM EXCELLENCE MODEL OF TQM

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ABSTRACT

The European Foundation Quality Model (EFQM) is based on nine criteria. Five of these are 'Enablers' and four are 'Results.' The 'Enabler' criteria cover what an organization does and lead to the 'Result' criteria that represent what an organization achieves. Feedback from 'Result' criteria help to improve 'Enabler' criteria.

A test of the EFQM quality model is performed here to study the relationship between the level of implementation of the model and the firm's performance. Firms with low level of quality implementation in all criteria show low results while firms with high level of quality implementation in all criteria show the highest results. However, firms with partial implementation of quality did not significantly improve their results. This article extends the work of Garcia-Bernal, et. al (2004) by utilizing multiple correspondence analysis to visually show relationships among 32 dummy variables showing four levels of quality at four groups of 34 firms representing four levels of quality implementation.

INTRODUCTION

TQM implies that quality should not be left to a quality controller who inspects for quality at the end of a production line but it should be a part of the whole organization from the arrival of raw materials to the departure of finished goods from the organization. The European Foundation Quality Model (EFQM) Excellence Model is a non-prescriptive framework based on nine criteria. Five of these are 'Enablers' and four are 'Results'. The 'Enabler' criteria cover what an organization does. The 'Results' criteria cover what an organization achieves. 'Results' are caused by 'Enablers' and feedbacks from 'Results' help to improve 'Enablers'.

The EFQM is used by thousands of organizations throughout Europe and is the acknowledged most robust quality and excellence model in existence today. It contains a set of nine weighted criteria that are utilized in the assessment process. Each criterion has a set of sub-criteria, 32 in total, that form the basis for the assessment and validation tool.

The Model is based on the premise that: Excellent results with respect to Performance, Customers, People and Society are achieved through Leadership driving Policy and Strategy, that is delivered through People Partnerships and Resources, and Processes. The EFQM Excellence Model is depicted below in Figure 1.

Figure 1: The EFQM Model of TQM

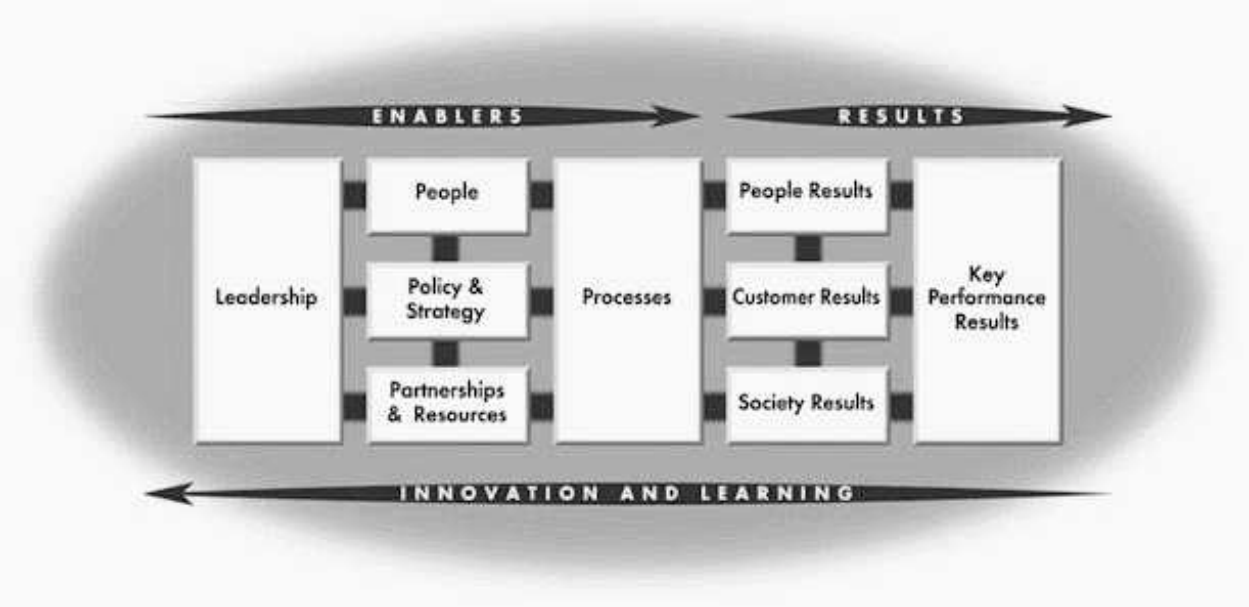

Table 1: The EFQM Criteria of Quality

Enablers	Results
1. Leadership The importance of leadership, products and processes is recognized. 2. People EFQM covers training, evaluation, effective human resource development, team working, empowerment, and rewards and recognition. 3. Policy and Strategy This covers product, service quality and organizational policy and strategy. 4. Partnerships and Resources Active encouragement of supplier partnership is given, with emphasis on mutually beneficial relationships. On resources, the facilities need to be maintained for capability, and materials should be conserved. 5. Processes The focus of EFQM is on the key processes necessary to deliver the organization's strategy.	1. People Results People are supposed to be adequately surveyed, with ideas such as team briefings and suggestion schemes incorporated. 2. Customer Results This requires evaluation of customer satisfaction through surveys and interviews. Loyalty and market share are measures. 3. Society Results EFQM asks the company to establish its impact on wider society, for example involvement in community activities. 4. Key Performance Results EFQM requires a "balanced scorecard" type approach, as well as cost of quality, product and process measures.

METHODOLOGY

Garcia-Bernal et al. (2004) test the EFQM quality model on a sample of 34 Spanish firms to study the impact of quality implementation on performance. The authors analyze 34 firms that have been evaluated by EFQM approved auditors. The valuations are based on the criteria and principles of the EFQM Quality model. All the firms are based in Aragon region (northeast) of Spain and were audited between 1997 and 2000. They utilize factor analysis to divide the sample into four groups based on the level of implementation of quality. They cluster analyze the data set and find four groups of firms where quality levels are similar within groups and different across groups. They note that lowest performance results are observed for firms that had the lowest level of quality implementation while the highest level of results were observed for firms with the highest level of quality implementation. However, intermediate level of quality implementation did not produce significantly high results. So their recommendation is to implement quality at a high level across the organization for higher results.

The present study extends the main findings of Garcia-Bernal et al. (2004) by expressing their data set in a three-dimensional visual form by using the multiple correspondence analysis (MCA). The findings of Garcia-Bernal et al. (2004) are confirmed and new insights are obtained from the three-dimensional plot of the complete data set.

CORRESPONDENCE ANALYSIS

Correspondence analysis (CA) is an exploratory data analysis technique. A particularly appealing aspect of CA is its graphical depiction of two different sets of points in the same low dimensionality. The graphical appeal of the technique seems to be its greatest strength in facilitating interpretation of the data set. The technique is most applicable when the researcher has a large data set consisting of several categorical variables (or variables which could be broken into categories).

CA can be described as finding the best simultaneous representation of two data sets that comprise the rows and columns of a data matrix (Lebart, Morineau, & Warwick 1984). It is an exploratory multivariate technique that converts a matrix of nonnegative data into a particular type of graphical display in which the rows and columns of the matrix are depicted as points (Greenacre & Hastie 1987). Simple correspondence analysis is the most basic form of correspondence analysis as applied to a two-way contingency table (cross-classification table). Multiple correspondence analysis applies when a multiway contingency table is coded as a matrix of indicator (or dummy) variables. The same algorithm applies to all types of CA (Greenacre & Hastie 1987).

CA originated simultaneously in the United States and in Britain (Hill 1982). Herschfeld (1935) seems to be the first in providing a mathematical account of the problem considered by CA. It was rediscovered in France in the early 1960s (Benzecri 1969; Lebart, Morineau, and Warwick 1984; Greenacre 1984; Greenacre & Hastie 1987). The theoretical basis of CA rests on the work of Eckart & Young (1936) on the singular value decomposition of a matrix. It is related to other multivariate techniques like the method of reciprocal averages, the analysis of variance approach, the principal components analysis, and the generalized canonical analysis (Hoffman & Franke, 1986; Greenacre 1984).

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